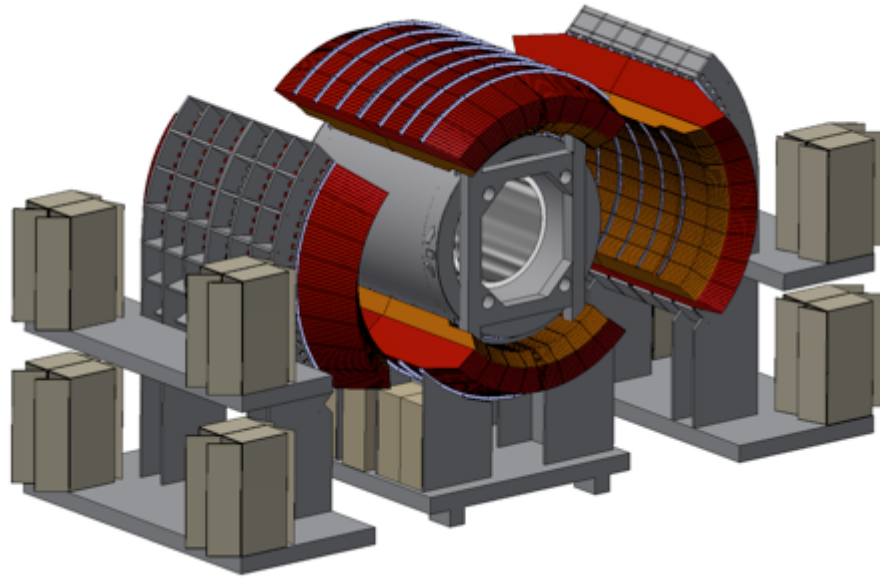
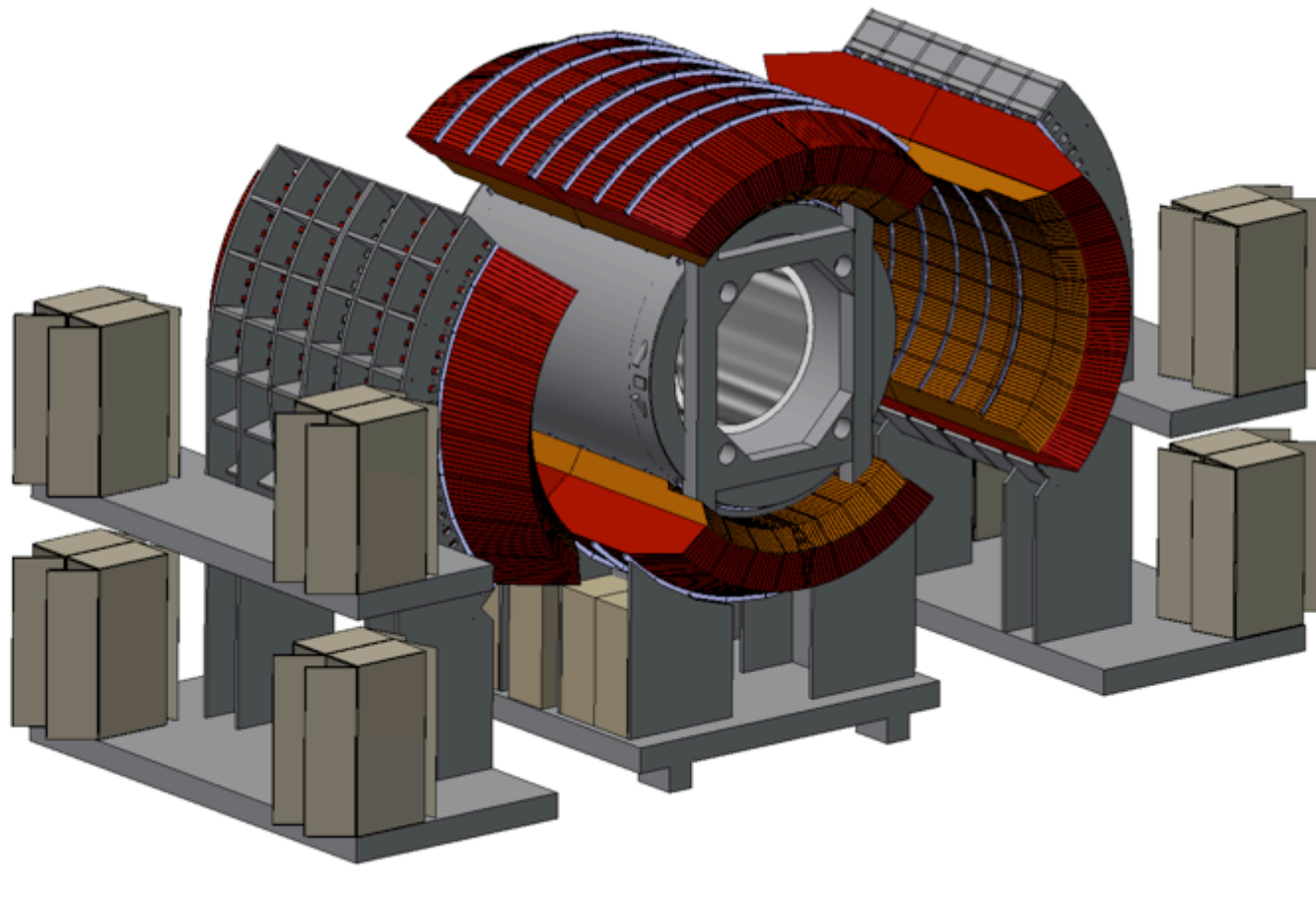


# sPHENIX Mechanical



D. Lynch, R. Ruggiero  
May 29, 2014

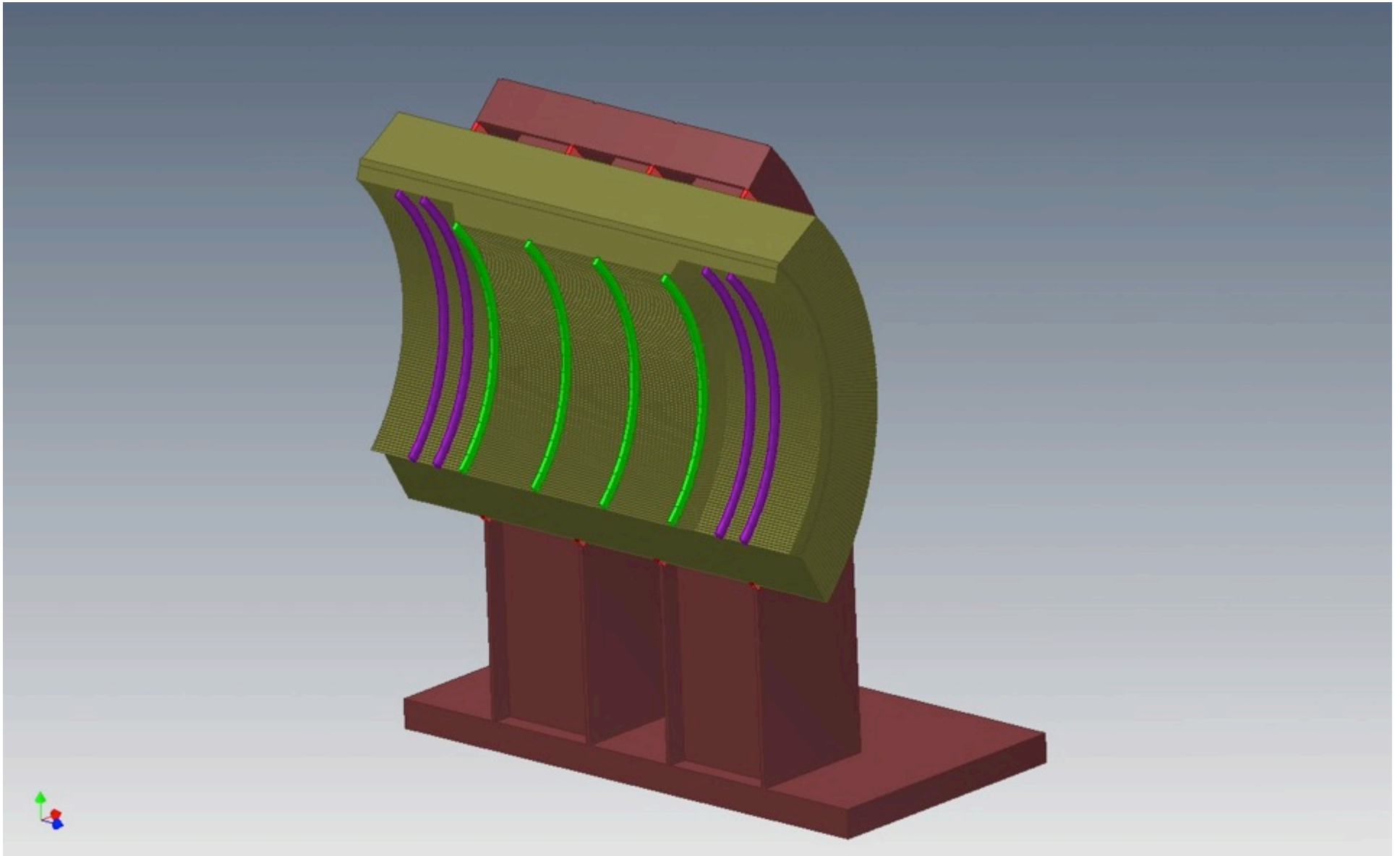
## sPHENIX Concept



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sPHENIX Mechanical Design

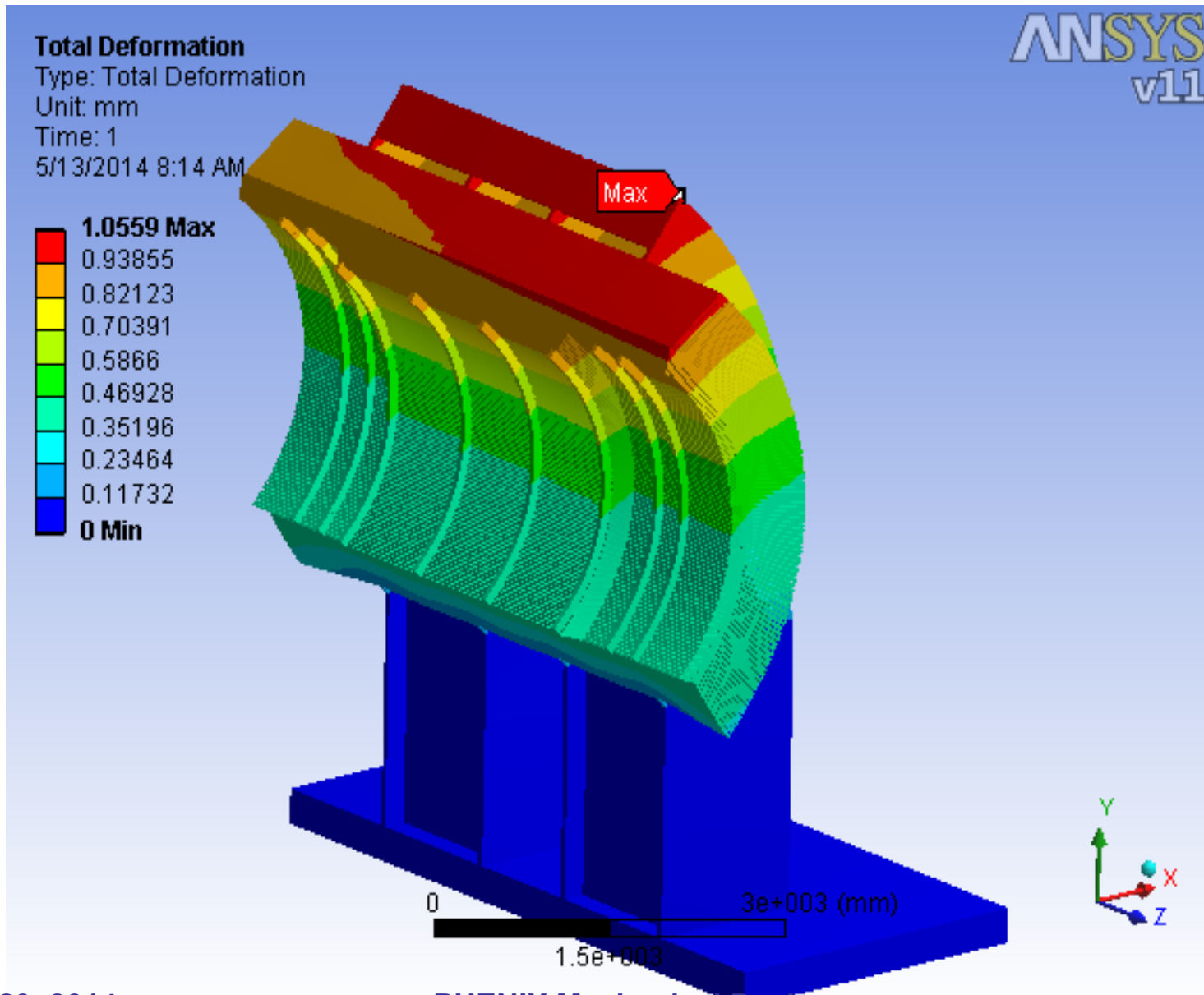
## xPHENIX SIDE SECTION



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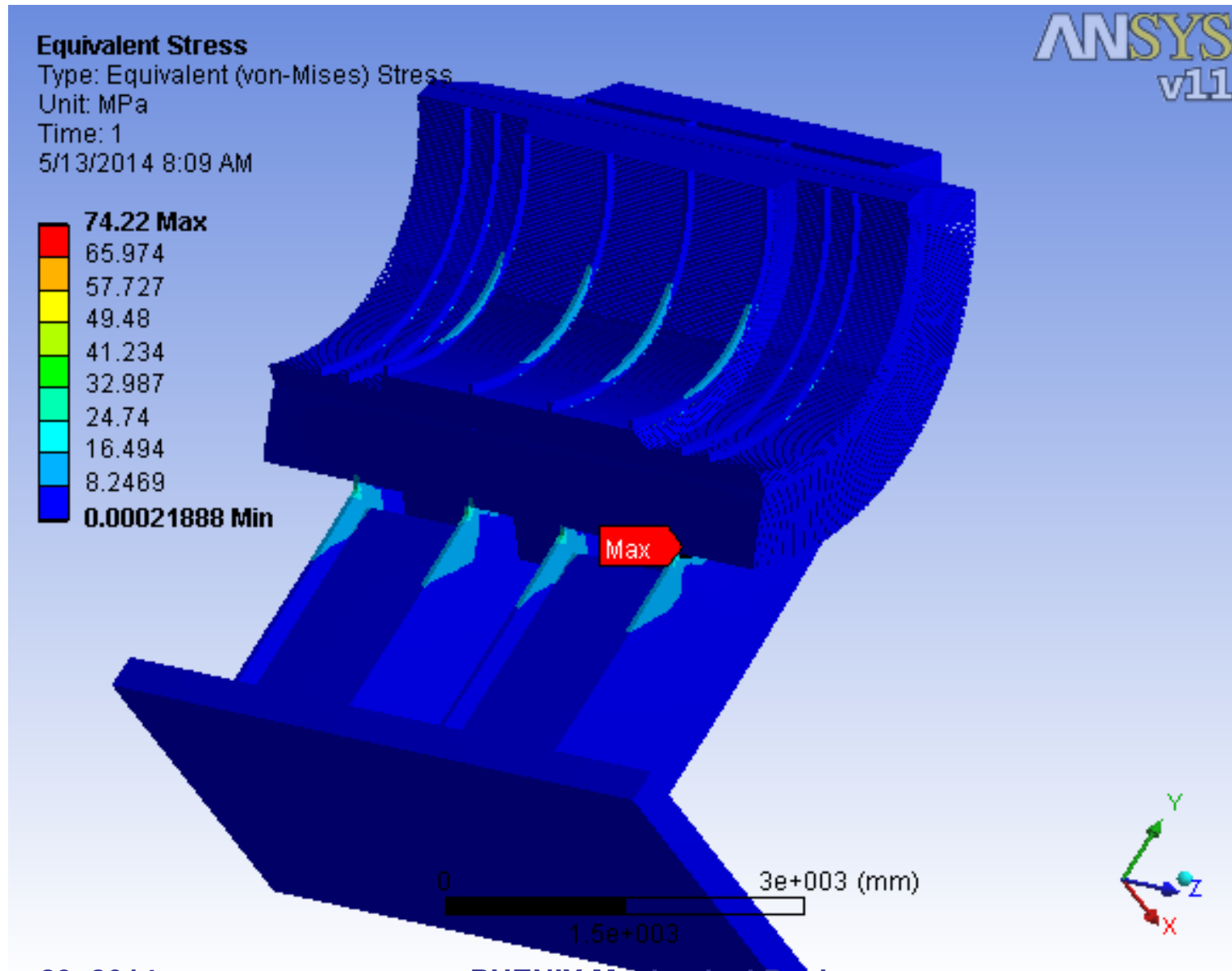
## xPHENIX SIDE SECTION DEFORMATION



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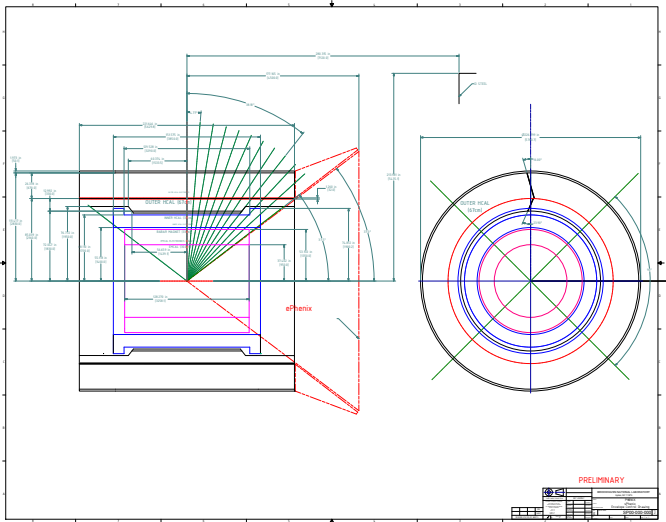
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## xPHENIX SIDE SECTION EQUIVALENT STRESS

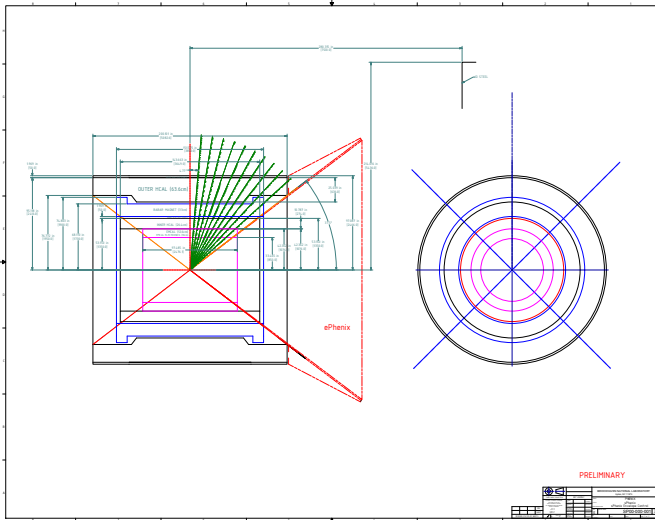


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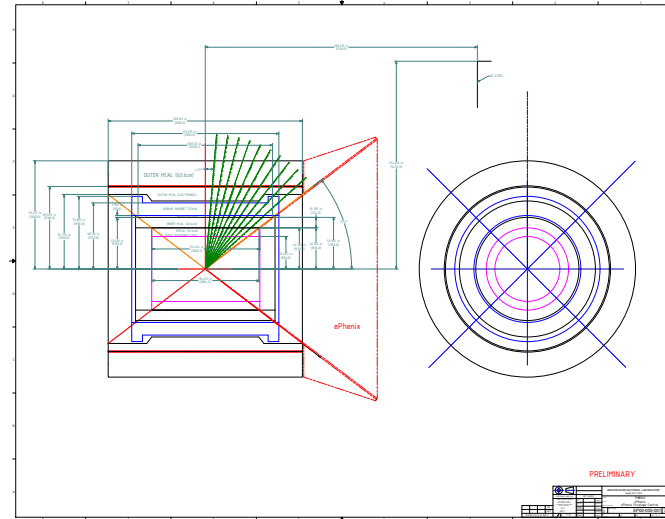
sPHENIX Mechanical Design



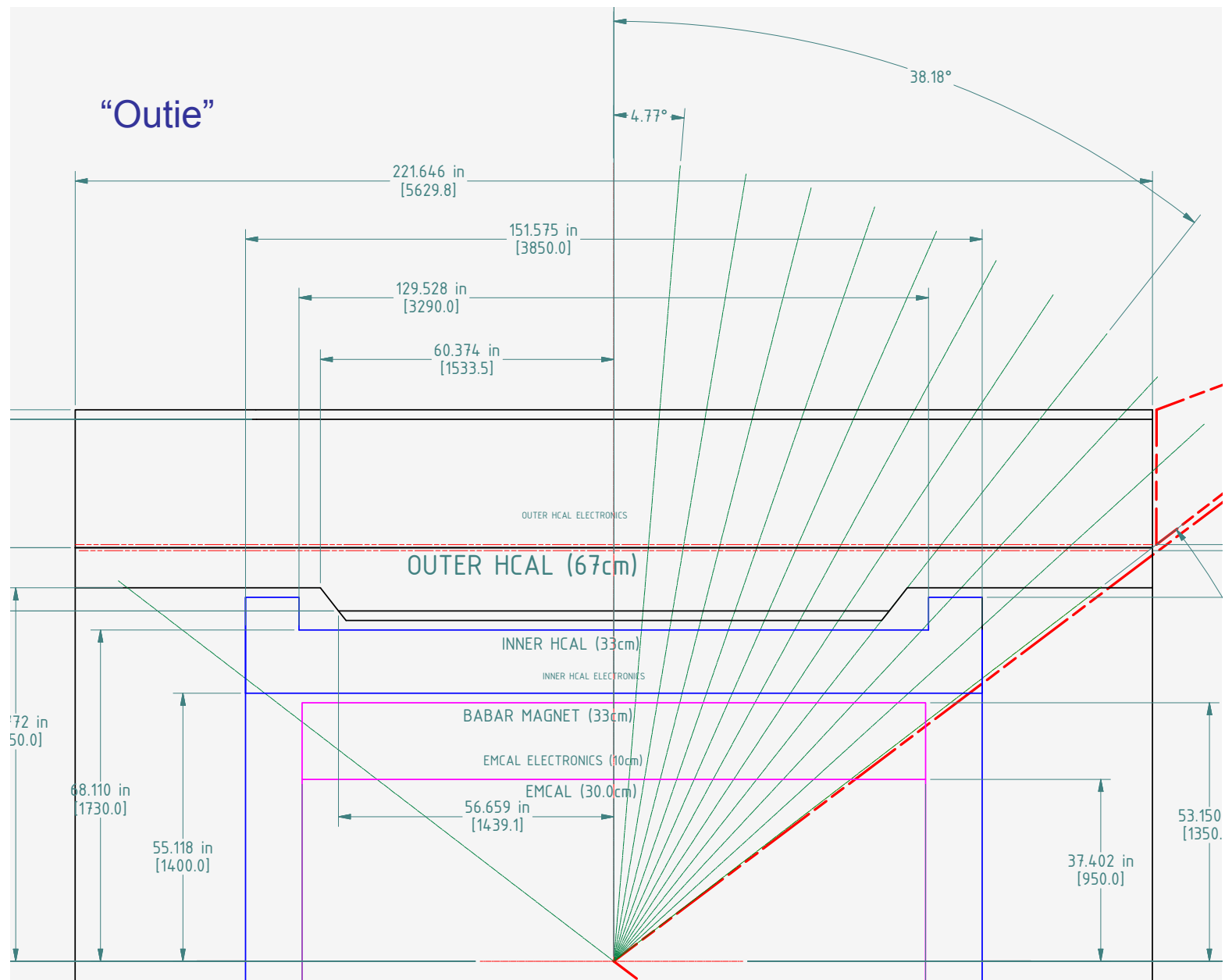
“Outie”



“Innie”

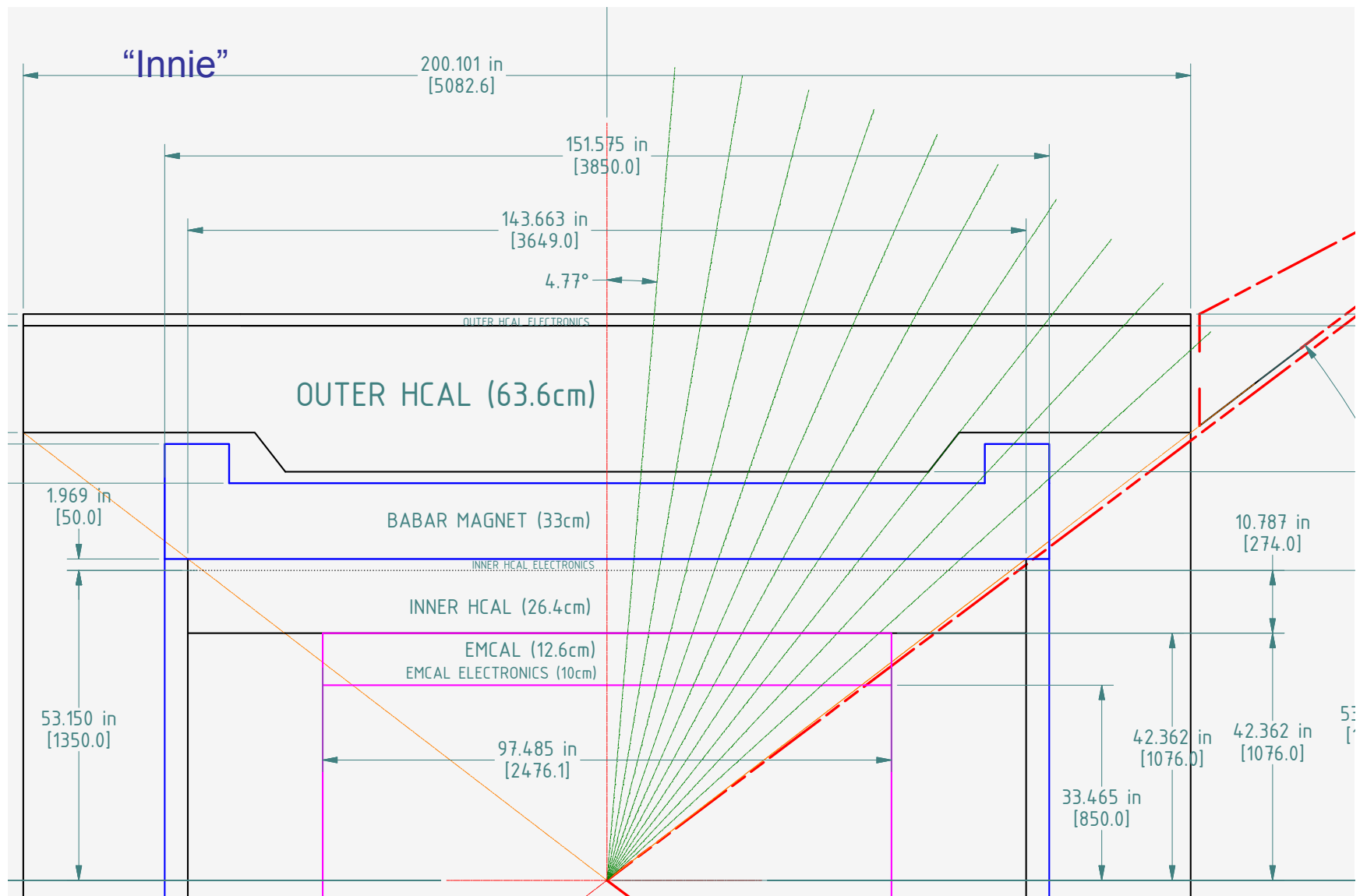


“Bothie”



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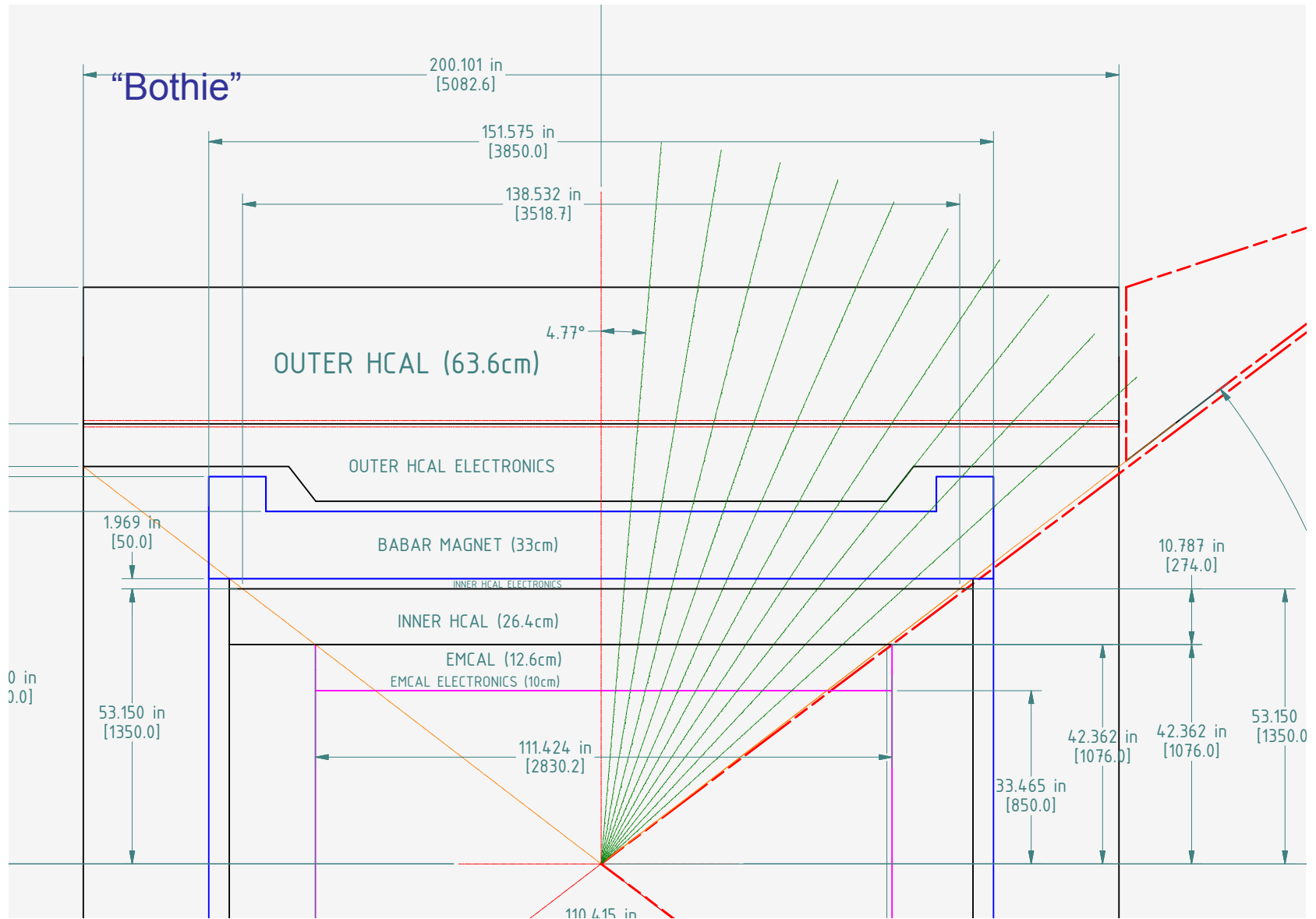
SPHENIX Mechanical Design



May 29, 2014

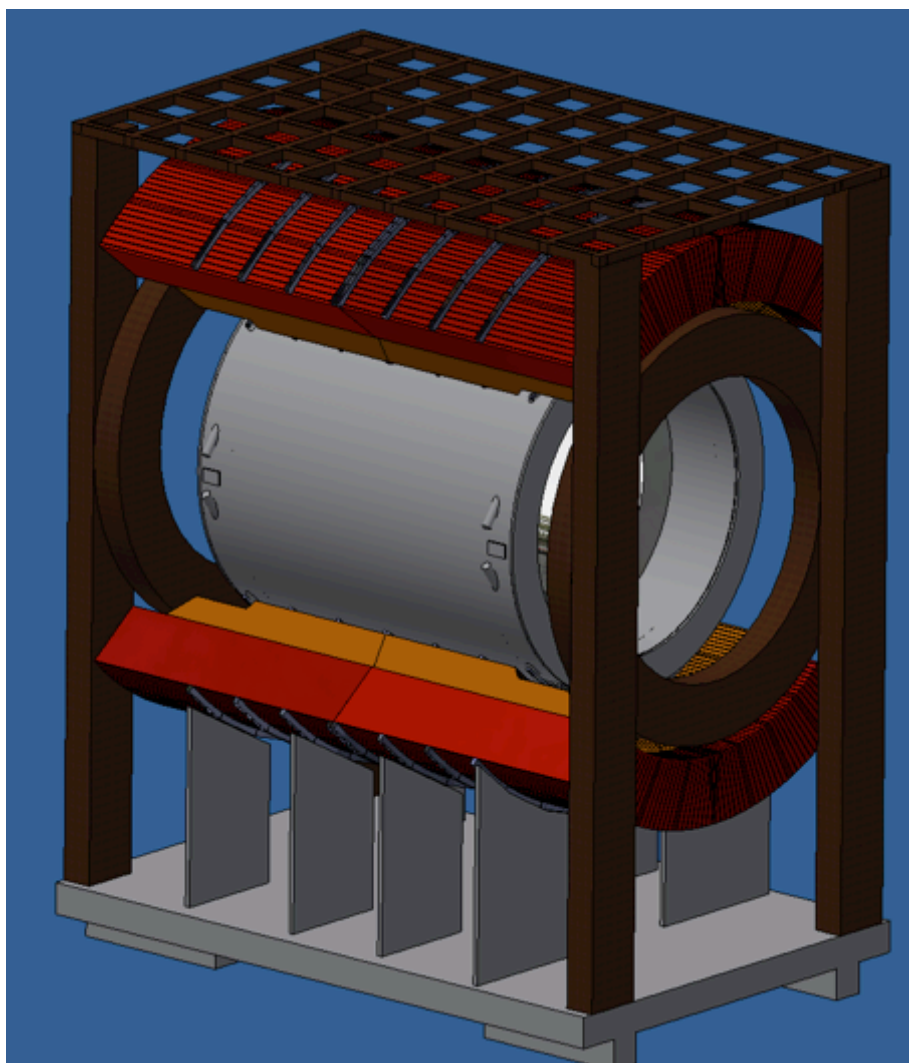
SPHENIX Mechanical Design





May 29, 2014

SPHENIX Mechanical Design

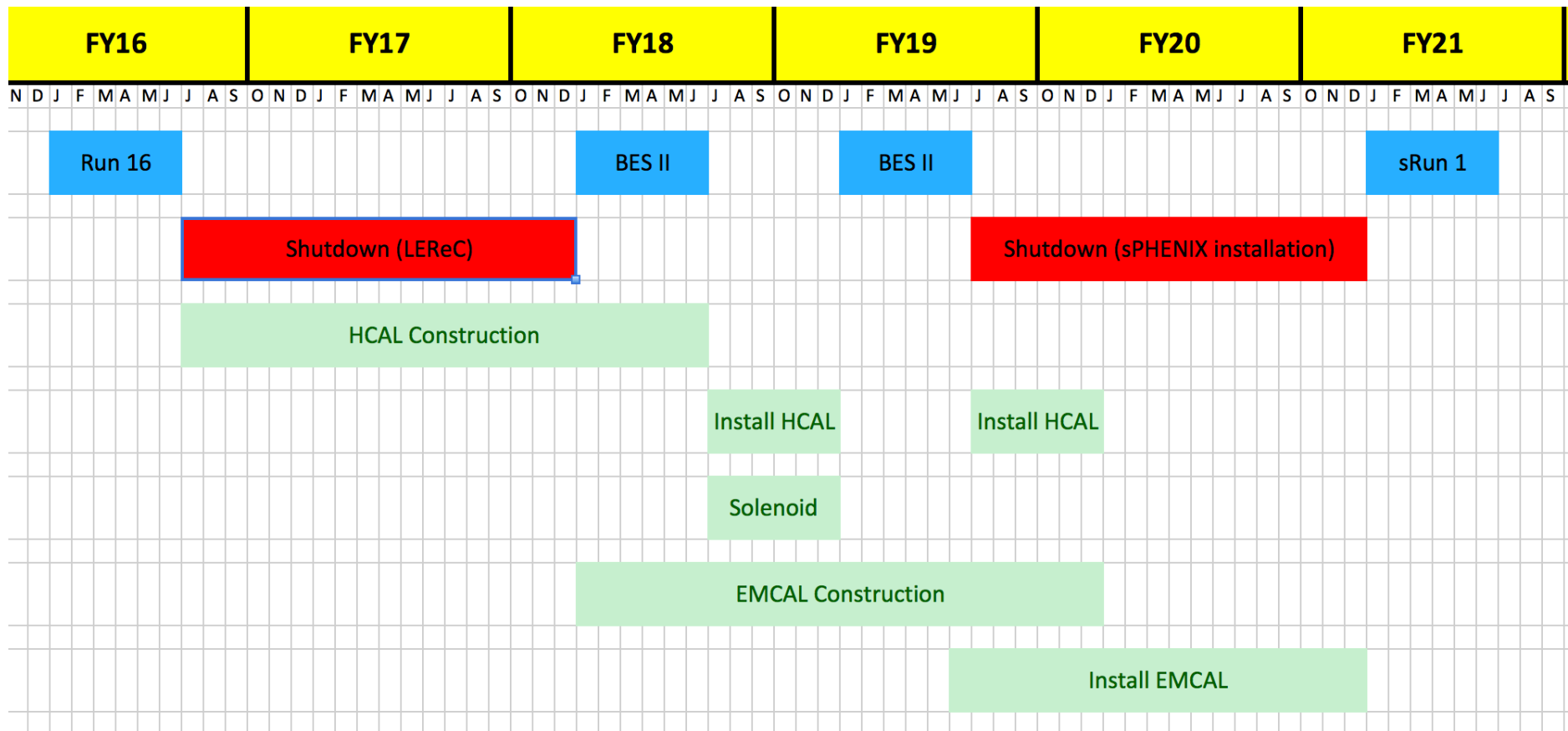


Alternate Central Pedestal  
support Concept

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sPHENIX Mechanical Design

# sPHENIX schedule



Desirable to have whole HCAl installed prior to  
 May 29, 2014  
 Run-19

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# sPHENIX activities

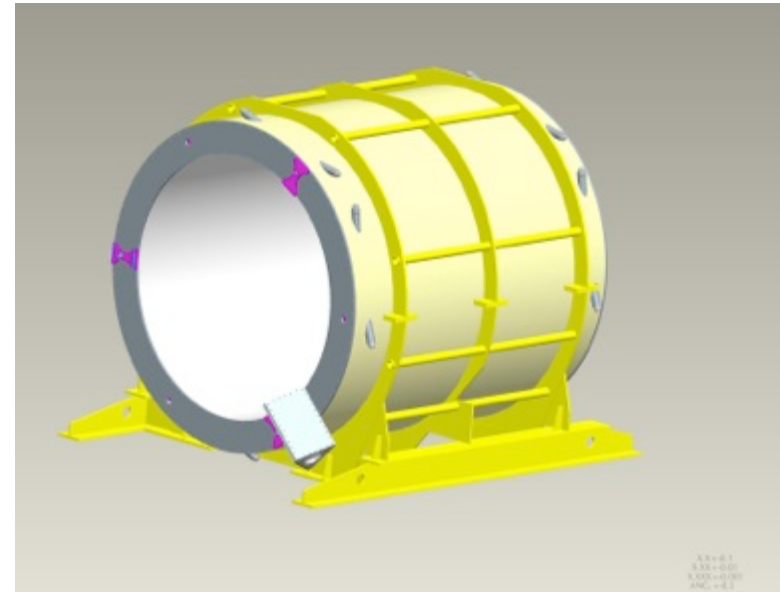
- March 10-12 BNL Review
- March 28 Final BNL Review report
- March 31-April 4 Livermore Workfest
- April 2 SMD/CAD SLAC visit on solenoid
- April 24 Electronics meeting at Nevis
- April 24-25 NSAC LRP schedule announced
- May 1 Forward sPHENIX whitepaper submitted to BNL
- May 2 Science review scheduled
- May 12 Today's first PMG meeting
- June 3 PHENIX science review rehearsal
- June 10 BNL science review
- July 1-2 DOE science review
- April 2015 LRP Resolution Meeting
- October 2015 Final LRP

May 29, 2014

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## Magnet (BABAR) (Magnet Div)

- Acquire rights Done
- Evaluate Transport Done
- Design Transport fixtures Done
- Fabricate Transport Fixtures 6/15/14
- Evaluate BNL test facility requirements 8/1/14
- Prepare test facility 9/1/14
- Install Transport fixtures 9/1/14
- Transport to BNL 9/15/14
- Install in test facility 10/1/14
- Design tests/test equipment 10/1/14
- Fabricate/procure test equipment 1/1/15
- Run tests 6/1/15
- Design Magnet modifications 12/1/14
- Fabricate magnet modifications 6/1/15
- Install magnet modifications 8/1/15
- Evaluate final installation 9/1/15
- Design installation support equipment 12/31/2015
- Fabricate/procure support equipment 7/1/2018
- Transport to IR 6/10/2019
- Install 8/30/2019
- Test 10/25/2019
- Commission 11/22/2019



May 29, 2014

sPHENIX Mechanical Design

*Meeting yesterday with Mag Div. to finalize magnet transportation:*

SMD has agreed to these tasks:

- moving the magnet
- cold testing it
- putting some modest current through it and organizing the testing
- designing modifications to the stack assembly as determined by sPHENIX\

Mike Anarella will manage these tasks.

Action item #1 In 2 weeks sPHENIX will provide an envelope drawing which can be used to estimate the cost of modifying the stack.

Action item #2 Mike will make a simple high level project file with the tasks that SMD will take leadership on by late June or early July.

-

Action item #3 The goal should be to have a Magnet Transport contract in place by July 1. Paul Kovach discussed preparations for the magnet move. The thermal shield restraints are in central shops being estimated and built. He has had some difficulty with PPM getting quotes for the move.

Regular sPHENIX Magnet meetings will take place on Wednesdays at 1pm. Next meeting in two weeks on June4.

## sPHENIX Engineering:

### Major Subsystems/Subtopics:

• Magnet (BABAR) (Magnet Div)	start 2/1/14 - 12/31/2018
• Hadronic Calorimeter (HCAL) (PHENIX)	start 2/1/14 - 12/31/2020
• EM Calorimeter EMCal (PHENIX)	start 2/1/14 - 12/31/2020
• VTX (RIKEN)	start 2/1/14 - 12/31/2020
• DIRC (?)	start ? - 12/31/2020
• VTX additional layers (RIKEN)	start ? - 12/31/2020
• Carriage Support structure (PHENIX)	start 2/1/14 - 12/31/2020
• Readout Electronics (PHENIX)	start 2/1/14 - 12/31/2020
• Infrastructure (PHENIX ++)	
• Electrical Power Services (PHENIX)	start ? - 12/31/2017
• Instrumentation Support (Signal trays & Racks) (PHENIX)	start ? - 12/31/2020
• Cryo Services (CAD)	start 2/1/14 – 8/1/2018
• Cooling water (CAD)	start ? - 12/31/2017
• Safety Systems (PHENIX )	start ? - 12/31/2020
• Work Platforms and Access/Egress Structures (CAD)	start ? - 12/31/2017
• HVAC (CAD)	start ? - 12/31/2017
• PHENIX Decommissioning (CAD, PHENIX)	start ? - 6/30/2017
• System Integration (PHENIX)	start 2/1/14 - 12/31/2020
• Testing (PHENIX)	start 2/1/14 - 12/31/2020
• Installation (PHENIX, CAD)	start 2/1/14 - 12/31/2020
• Commissioning (PHENIX)	start 2/1/14 - 12/31/2020

May 29, 2014

sPHENIX Mechanical Design

## Infrastructure: SULI Student this summer task plan:

*The efforts to be undertaken by the SULI summer student working on this project include planning for the logistics involved, analysis and design documentation of existing PHENIX infrastructure and initial layouts for sPHENIX. Student will work closely with PHENIX and RHIC engineers and designers to achieve these goals.*

## PHENIX Decommissioning: SULI Student this summer task plan:

*The efforts to be undertaken by the SULI summer student working on this project include organizing and planning work procedures for decommissioning the various PHENIX detectors and related support subsystems .*



All involved in sPHENIX should make sure they have an up to date RCF account so that they can access the PHENIX Calendar and all meeting slides and to access the PHENIX drawings and Illustrations folders at:

<https://www.phenix.bnl.gov/WWW/p/draft/donlynch/sPHENIXfigures/>